

AMENDMENTS TO THE CLAIMS:

This listing of the claims will replace all prior versions, and listings, of the claims in this application.

Listing of Claims:

1. (Currently Amended) A method ~~for operating a mobile station with a base station~~, comprising:

when ~~a~~ the mobile station is in an autonomous mode of operation, autonomously transmitting data from the mobile station to ~~a~~ the base station on a reverse channel;

in response to receiving an acknowledgment indication from the base station, that comprises a reverse channel assignment message for the mobile station, switching the mobile station to a scheduled mode of operation, where, while in the scheduled mode, the mobile station provides ~~the~~ data transmission power information and ~~the—selected~~ data transmission buffer status information as a request to transmit data; and

transmitting data from the mobile station on an assigned reverse channel.

2. (Previously Presented) A method as in claim 1, where transmitting from the mobile station to the base station to initiate the data transmission comprises transmitting a supplemental channel request message.

3. (Previously Presented) A method as in claim 1, where the reverse channel comprises one of a reverse enhanced access channel, a reverse fundamental channel, and a reverse dedicated channel.

4. (Previously Presented) A method as in claim 2, where the acknowledgment indication comprises a supplemental channel assignment message.

5. (Original) A method as in claim 4, where the acknowledgment indication further comprises power control bits and data rate grant bits.

6. (Previously Presented) A method as in claim 5, where the power control bits and data rate grant bits are received by the mobile station on a common power control channel.

7. (Original) A method as in claim 1, where transmitting the data from the mobile station on the assigned reverse channel comprises also transmitting mobile station buffer activity bits and a data rate request bit, and further comprising receiving, from the base station, a power control bit, a data rate grant bit and an acknowledgment/non-acknowledgment indication.

8. (Original) A method as in claim 7, where the data rate request bit is transmitted as part of a dynamic buffer status report, and requests one of an increase in data rate, a decrease in data rate, or no change in the data rate.

9. (Original) A method as in claim 8, where the data rate grant bit is time multiplexed by the base station with the power control bit, and indicates one of a grant of the requested data rate or a denial of the requested data rate.

10. (Currently Amended) An apparatus ~~A mobile station~~, comprising:

an RF transceiver for conducting bidirectional wireless communications with a base station; and

a data processor operating under the control of a stored program for, when the apparatus ~~mobile station~~ is in an autonomous mode of operation, autonomously transmitting from the apparatus ~~mobile station~~ to the base station on a reverse channel, said data processor being responsive to a reception of an acknowledgment indication from the base station, that comprises a reverse channel assignment message for the apparatus ~~mobile station~~, for switching the apparatus ~~mobile station~~ to a scheduled mode of operation and for transmitting data from the apparatus ~~mobile station~~ on an assigned reverse channel, where, while in the scheduled mode, the apparatus ~~mobile station~~

station provides the data transmission power information and the ~~selected~~ data transmission buffer status information as a request to transmit data.

11. (Currently Amended) An apparatus ~~A mobile station~~ as in claim 10, where when transmitting from the apparatus ~~mobile station~~ to the base station to initiate the data transmission the data processor transmits a supplemental channel request message.

12. (Currently Amended) An apparatus ~~A mobile station~~ as in claim 10, where the reverse channel comprises one of a reverse enhanced access channel, a reverse fundamental channel, and a reverse dedicated channel.

13. (Currently Amended) An apparatus ~~A mobile station~~ as in claim 11, where the acknowledgment indication comprises a supplemental channel assignment message.

14. (Currently Amended) An apparatus ~~A mobile station~~ as in claim 13, where the acknowledgment indication further comprises power control bits and data rate grant bits.

15. (Currently Amended) An apparatus ~~A mobile station~~ as in claim 14, where the power control bits and data rate grant bits are received by the apparatus ~~mobile station~~ on a common power control channel.

16. (Currently Amended) An apparatus ~~A mobile station~~ as in claim 10, where when transmitting the data from the apparatus ~~mobile station~~ on the assigned reverse channel the data processor also transmits buffer activity bits and a data rate request bit, and said data processor is further responsive for receiving, in response from the base station, a power control bit, a data rate grant bit and an acknowledgment/non-acknowledgment indication.

17. (Currently Amended) An apparatus ~~A mobile station~~ as in claim 16, where the data rate request bit is transmitted as part of a dynamic buffer status report, and requests one of an increase in data rate, a decrease in data rate, or no change in the data rate.

18. (Currently Amended) ~~An apparatus A mobile station~~ as in claim 17, where the data rate grant bit is time demultiplexed by the data processor with the power control bit, and indicates one of a grant of the requested data rate by the base station or a denial of the requested data rate.

19. (Currently Amended) ~~An apparatus A mobile station~~ as in claim 10, where the apparatus mobile station and the base station communicate over a reverse synchronous code division, multiple access channel.

20. (Currently Amended) A method ~~for operating a mobile station with a base station for transmitting data packets from the mobile station to the base station over a reverse supplemental channel~~, comprising:

when ~~a~~ the mobile station is in an autonomous mode of operation, autonomously transmitting from the mobile station to ~~a~~ the base station to initiate a data transmission from the mobile station to the base station, the transmission comprising a supplemental channel request message that is transmitted over a reverse enhanced access channel or a reverse supplemental channel;

receiving an acknowledgment indication from the base station over a common power control channel, the acknowledgment indication comprising a supplemental channel assignment message comprising power control bits and data rate grant bits;

in response to receiving the acknowledgment indication from the base station, switching the mobile station to a scheduled mode of operation;

transmitting data packets from the mobile station ~~on an assigned reverse channel~~ over a reverse supplemental channel (R-SCH), further comprising transmitting mobile station buffer activity bits and a data rate request bit, and

receiving, from the base station in response, a power control bit, a data rate grant bit and an

acknowledgment/non-acknowledgment indication, wherein there exist at least four R-SCH states and at least eight transitions between the R-SCH states, wherein the at least four R-SCH states include an R-SCH initialization state, an R-SCH autonomous state, an R-SCH scheduled state, and an R-SCH release state.

21. (Original) A method as in claim 20, where the data rate request bit is transmitted as part of a dynamic buffer status, QoS level and transmit power report, and requests one of an increase in data rate, a decrease in data rate, or no change in the data rate.

22. (Original) A method as in claim 21, where the data rate grant bit is time multiplexed by the base station with the power control bit, and indicates one of a grant of the requested data rate or a denial of the requested data rate.

23. (Currently Amended) A method ~~for operating a mobile station (MS) with a base station (BS) for transmitting data packets from the mobile station to the base station over a reverse supplemental channel (R-SCH), wherein there exist at least four R-SCH states and at least eight transitions between the R-SCH states, where the at least four R-SCH states comprise a R-SCH initialization state, a R-SCH autonomous state, a R-SCH scheduled state, and a R-SCH release state,~~ comprising:

executing one of a plurality of techniques to generate a reverse supplemental channel (the R-SCH) initialization state, comprising one of,

sending a modified supplemental channel request message (SCRM) to a base station (the BS), and receiving from the BS an acknowledgement as a modified extended supplemental channel assignment message (ESCAM), where the modified SCRM comprises at least one of mobile station (MS) buffer status, transmit power, quality of service (QoS) level and a preferred mode of R-SCH operation, said preferred mode of R-SCH operation being one of an autonomous mode or a scheduled mode, and where the modified ESCAM comprises information to identify the MS;

sending a supplemental channel request message (SCRM) to the BS, and receiving from the BS an acknowledgement as a modified extended supplemental channel assignment mini message (ESCAMM), where the ESCAMM comprises the information to identify the MS; and

sending a request over a reverse enhanced access channel (R-EACH), where the request comprises parameters that specify at least the preferred mode of R-SCH operation, wherein the method is a method for operating the MS with the BS for transmitting data packets from the mobile station to the base station over the R-SCH, wherein there exist at least four R-SCH states and at least eight transitions between the R-SCH states, where the at least four R-SCH states comprise a R-SCH initialization state, a R-SCH autonomous state, a R-SCH scheduled state, and a R-SCH release state.

24. (Previously Presented) A method as in claim 23, where in the R-SCH autonomous state, an active MS accesses the R-SCH without prior authorization, and comprises, for constant data rate applications, one of:

sending data over the R-SCH autonomously using a data rate established by one of a plurality of rules, where an active MS is identified using at least one of medium access control identification (MAC_ID) information, that is used by the BS to distinguish between multiple autonomous mode MSs, and a MS long code; and

explicitly sending rate indication information over a reverse channel to indicate the data rate that is being used in a present R-SCH frame.

25. (Previously Presented) A method as in claim 24, where in the R-SCH autonomous state, and when operating with a variable data rate, the MS operates in a semi-scheduled mode by initially starting in the autonomous mode at a current data rate, and while sending data over the R-SCH, the MS sends a data rate request to the BS for indicating one of a request to transmit on the R-SCH at a data rate of current data rate plus incremental rate, a request to transmit on the R-SCH at a data rate of current data rate minus decremented rate, or a request to transmit on the

R-SCH at the current data rate.

26. (Previously Presented) A method as in claim 25, where the data rate request comprises 1-bit of information with three-state modulation that is sent over one of an uplink overhead dedicated channel, a common channel, the R-SCH using a multiplexing option, or in a MS dynamic buffer status, QoS level and transmit power report to the BS.

27. (Previously Presented) A method as in claim 25, where the BS is responsive to a receipt of the data rate request from the MS to either grant or deny the MS data rate request using grant/deny feedback information.

28. (Previously Presented) A method as in claim 27, where the grant/deny feedback information is sent to the MS over power control sub-channels and is time-multiplexed with power control information.

29. (Previously Presented) A method as in claim 25, where R-SCH state/mode transitions between the R-SCH initialization state, the R-SCH autonomous state, the R-SCH scheduled state and the R-SCH release state occur as follows:

when transitioning from the R-SCH initialization state to the R-SCH autonomous state, the preferred mode of operation is embedded in a modified R-SCH assignment mini message;

when transitioning from the R-SCH initialization state to the R-SCH scheduled state, the preferred mode of operation is embedded in the modified R-SCH assignment mini message;

for a transition from the R-SCH autonomous state to remain in the R-SCH autonomous state, and in accordance with a first operational mode of operation, the MS remains in the R-SCH autonomous state while transmitting at the initial data rate, and in accordance with a second operational mode of operation, the MS remains in the autonomous state when a reverse data rate indication indicates a legitimate data rate as opposed to an indication to switch to the R-SCH

scheduled state;

for a transition from the R-SCH scheduled state to remain in the R-SCH scheduled state, the MS remains in the R-SCH scheduled state so long as there is at least not a new mode switch request in the SCRM;

for a transition from the R-SCH autonomous state to the R-SCH scheduled state, and in accordance with the first operational mode of operation, the preferred mode of operation is embedded in the modified R-SCH assignment mini message, and in accordance with the second operational mode of operation, a state transition trigger is implemented with the QoS level;

for a transition from the R-SCH scheduled state to the R-SCH autonomous state, and in accordance with the first operational mode of operation, a R-SCH-assigned duration timer is used as the state transition trigger such that after the duration of the scheduled transmission, the MS reverts back to the R-SCH autonomous state, in accordance with the second operational mode of operation, the preferred mode of R-SCH operation is embedded in the modified R-SCH assignment mini message, and in accordance with a third operational mode of operation, the state transition trigger is implemented with the QoS level; and for transitions to the R-SCH release state from the R-SCH autonomous and scheduled states, R-SCH release messages and procedures are used.

30. (Previously Presented) A method as in claim 29, where for the transition from the R-SCH autonomous state to the R-SCH scheduled state in accordance with the second operational mode of operation, the state transition trigger is implemented by an increase in a required QoS level, and for the transition from the R-SCH scheduled state to the R-SCH autonomous state in accordance with the third operational mode of operation, the state transition trigger is implemented by a decrease in a required QoS level.

31. (Currently Amended) A method ~~for operating a mobile station with a base station,~~ comprising:

when ~~a the~~ mobile station is in an autonomous mode of operation, autonomously transmitting data from the mobile station to ~~a the~~ base station on a reverse channel;

the mobile station receiving an assignment message from the base station, the assignment message comprising an acknowledgment/non-acknowledgment indication, power control bits, and data rate grant bits;

in response to receiving an acknowledgment indication from the base station, switching the mobile station to a scheduled mode of operation; and

transmitting data from the mobile station to the base station over a reverse supplemental channel (R-SCH), wherein there exist at least four R-SCH states and at least eight a plurality of transitions between the R-SCH states, wherein the at least four R-SCH states include an R-SCH initialization state, an R-SCH autonomous state, an R-SCH scheduled state, and an R-SCH release state.

32. (Currently Amended) A mobile station, comprising:

an RF transceiver for conducting bidirectional wireless communications with a base station; and
a data processor operating under the control of a stored program for, when the mobile station is in an autonomous mode of operation, autonomously transmitting from the mobile station to the base station on a reverse channel, the mobile station receiving an assignment message from the base station, the assignment message comprising an acknowledgment/non-acknowledgment indication, power control bits, and data rate grant bits, said data processor being responsive to a reception of an acknowledgment indication from the base station for switching the mobile station to a scheduled mode of operation and for transmitting data from the mobile station to the base station over a reverse supplemental channel (R-SCH), wherein there exist at least four R-SCH states and at least eight a plurality of transitions between the R-SCH states, wherein the at least four R-SCH states include an R-SCH initialization state, an R-SCH autonomous state, an R-SCH

scheduled state, and an R-SCH release state.

33. (Currently Amended) A method ~~for operating a mobile station with a base station for transmitting data packets from the mobile station to the base station over a reverse supplemental channel;~~ comprising:

when ~~a~~ the mobile station is in an autonomous mode of operation, autonomously transmitting from the mobile station to ~~a~~ the base station to initiate a data transmission from the mobile station to the base station, the transmission comprising a supplemental channel request message that is transmitted over a reverse channel;

in response to receiving an acknowledgment indication from the base station, switching the mobile station to a scheduled mode of operation;

transmitting data packets from the mobile station transmitting data from the mobile station to the base station over a reverse supplemental channel (R-SCH), wherein there exist at least four R-SCH states and at least eight ~~a plurality of~~ transitions between the R-SCH states, further comprising transmitting mobile station buffer activity bits and a data rate request bit, and

receiving, from the base station in response, a power control bit, a data rate grant bit and an acknowledgment/non-acknowledgment indication, wherein the at least four R-SCH states include an R-SCH initialization state, an R-SCH autonomous state, an R-SCH scheduled state, and an R-SCH release state.

34. (Currently Amended) A mobile station, comprising:

a transceiver for receiving and transmitting signals;

a signal processor coupled to the transceiver;

a controller coupled to the signal processor, the controller receiving information from the signal processor derived from the signal processor and providing information to the signal processor to be converted for transmission through the transceiver, wherein the mobile station comprises an autonomous mode and a scheduled mode, wherein, in the autonomous mode, the mobile station is configured to transmit data at a selected ~~select a~~ data transmission rate ~~for transmission~~ to the base station over a reverse supplemental channel (R-SCH), wherein, in the scheduled mode, the mobile station is configured to transmit a request by providing ~~the~~ data transmission power information and ~~the~~ selected data transmission buffer status information to the base station for granting a data transmission rate to the mobile station, wherein there exist at least four R-SCH states and at least eight transitions between the R-SCH states, wherein the at least four R-SCH states include an R-SCH initialization state, an R-SCH autonomous state, an R-SCH scheduled state, and an R-SCH release state.

35. (New) An apparatus as in claim 10, wherein the apparatus is a mobile station.